oxidation unit being indirectly heated by heat transfer from said combustion unit so that the temperature in said CO oxidation unit is controlled in the range of 100 to 250°C;

said CO oxidation unit including an outside surface, and being arranged to obtain atmospheric cooling of the outside surface; and

said raw material reforming unit, said shift reaction unit and said CO oxidization unit are concentrically arranged relative to each other with said CO oxidization unit placed on an outer peripheral side of the reforming apparatus.

REMARKS

Upon entry of this amendment, claims 1 and 30 will be amended, whereby claims 1-30 will remain pending. Claims 1, 12, 18, 20 and 30 are independent claims.

Reconsideration and allowance of the application are respectfully requested.

Response to Indication of Allowable Subject Matter and the Rejection over MURRAY et al. In View Of TANIZAKI

In response to the indication of allowability of claims 2-10 and 12-23, and the rejection of claims 1, 11 and 24-30 under 35 U.S.C. 103(a) as being unpatentable over MURRAY et al. (hereinafter "MURRAY"), EP 0 199 878, in view of TANIZAKI, JP 07-126001 A, Applicants respectfully submit the following.

Applicants express appreciation for the indication of allowability of claims 2-10 and 12-23. Moreover, by the present amendment independent claims 1 and 30 have been amended to include

subject matter that has been indicated by the examiner to be allowable. Accordingly, each of \the claims pending in the instant application should presently be in condition for allowance.

However, Applicants respectfully submit that this amendment is being made without expressing agreement or acquiescence with the rejection of record. In this regard, for the reasons previously expressed by Applicants, including the Amendment Under 37 C.F.R. 1.112, filed July 31, 2001, Applicants respectfully submit that the claims as pending prior to the present amendment are allowable over the prior art of record.

Still further, it is noted that the Final Office Action has once again set forth a statement of reasons for allowance. In response, Applicants respectfully submit that the reasons for allowance of the present application are not restricted to the reasons cited by the Examiner. The prior art of record in the present application does not collectively disclose the combination of inventive features recited in each of the claims of the present application. Accordingly, Applicants respectfully submit, for the sole purpose of completing the record, that the reasons for allowance of the present application are not limited to the reasons indicated by the examiner.

Accordingly, the rejection of record should be withdrawn, and all of the claims should be indicated as allowable.

CONCLUSION

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejection of record, and allow each of the pending claims.

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Applicants therefore respectfully request that an early indication of allowance of the application be indicated by the mailing of the Notices of Allowance and Allowability.

Should the Examiner have any questions regarding this Response, the this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
Hitoshi KUDO et al.

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Reg. No. 33,094

February 8, 2002
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APPENDIX
MARKED UP COPY OF AMENDED CLAIMS 1 AND 30

1. (Thrice Amended) A reforming apparatus comprising an integrated structure of three separate units, comprising:

a raw material reforming unit for steam-reforming a raw material to be reformed and producing a reformed gas containing hydrogen as a principal component, including a heat source that generates heat by combustion of a fuel gas, operable to directly obtain heat for the steam reformation reaction from said heat source;

a shift reaction unit for decreasing, by water-gas-shift reaction, CO contained in the reformed gas produced in said raw material reforming unit; and

a CO oxidation unit for further decreasing, by oxidation, CO contained in reformed gas treated in said shift reaction unit; [and]

said raw material reforming unit and said shift reaction unit contain different catalysts, and said shift reaction unit and said CO oxidation unit being arranged in a manner that said shift reaction unit and said CO oxidation unit can be indirectly heated by heat transfer from the heat source of said raw material reforming unit, and further said CO oxidation unit including an outside surface, and being arranged to obtain atmospheric cooling of the outside surface; and

said raw material reforming unit, said shift reaction unit and said CO oxidization unit are concentrically arranged relative to each other with said CO oxidization unit placed on an outer peripheral side of the reforming apparatus.

30. (Four Times Amended) A reforming apparatus comprising an integrated structure of four separate units, which comprises:

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a combustion unit for generating heat by combustion of a fuel gas;

a raw material reforming reaction unit for steam-reforming a raw material and producing a reformed gas containing hydrogen as a principal component;

a shift reaction unit for decreasing CO contained in the reformed gas, that was produced in said raw material reforming unit, by water-gas-shift reaction;

a CO oxidation unit for further decreasing CO contained in the resultant reformed gas, that was treated in said shift reaction unit, by oxidation; [and]

said reforming reaction unit and said shift reaction unit containing different catalysts, said shift reaction unit and said CO oxidation unit being indirectly heated by heat transfer from the heat source of said raw material reforming unit, said CO oxidation unit being positioned outside said reforming reaction unit, and said reforming reaction unit being directly heated by said combustion unit so that the temperature in said reforming reaction unit is controlled in the range of 400 to 1000°C, said shift reaction unit being indirectly heated by heat transfer from said combustion unit so that the temperature in said shift reaction unit is controlled in the range of 200 to 350°C, said CO oxidation unit being indirectly heated by heat transfer from said combustion unit so that the temperature in said CO oxidation unit is controlled in the range of 100 to 250°C;

said CO oxidation unit including an outside surface, and being arranged to obtain atmospheric cooling of the outside surface; and

said raw material reforming unit, said shift reaction unit and said CO oxidization unit are concentrically arranged relative to each other with said CO oxidization unit placed on an outer peripheral side of the reforming apparatus.

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